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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,729	06/07/2005	Hideki Sawada	10921.327USWO	6639
52835 7590 09/26/2007 HAMRE, SCHUMANN, MUELLER & LARSON, P.C. P.O. BOX 2902 MINNEAPOLIS, MN 55402-0902			EXAMINER LEE, CHEUKFAN	
			ART UNIT 2625	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/537,729	SAWADA, HIDEKI	
	<b>Examiner</b>	<b>Art Unit</b>	
	Cheukfan Lee	2625	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/7/2005</u> .  | 6) <input type="checkbox"/> Other: _____                          |

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1. Claims 1-10 are pending. Claims 1 and 9 are independent.
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 and 6-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Saito (U.S. Patent No. 6,512,603), the application publication (Pub. No. US 2002/0135824 A1) of which is cited by Applicant in the IDS filed June 7, 2005.

Regarding claim 1, Saito discloses an image reading apparatus (Fig. 11, col. 1, lines 18-38) comprising a light source (117) for illuminating an image reading region (see upper surface of glass 101) extending in a primary scanning direction (the direction into the page, Fig. 11), a case 109) for accommodating the light source (117), a substrate (118) including a first side edge (the edge including the upper left corner of 118 in Fig. 11, which shows a cross-sectional view of 118; the edge of the upper surface of 118 shown at the lower part of Fig. 12) and a second side edge (the edge including the upper right corner of 118 in Fig. 11, which shows a cross-sectional view of 118; the edge of the upper surface of 118 shown at the upper part of Fig. 12) spaced from each other in a secondary scanning direction (left-right direction, Fig. 11) which is

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perpendicular to the primary scanning direction, the substrate (118) being mounted to the case (109), a plurality of sensor IC chips (112, Fig. 12) for detecting light traveling from the image reading region (see upper surface of glass 101, Fig. 11), the sensor IC chips (112) being mounted on a principal surface of the substrate (118) at positions closer to the second side edge (the upper edge of 118 shown in the upper part of Fig. 12) than to the first side edge, a wiring pattern formed on the substrate (118) (Fig. 12), and a plurality of wires electrically connecting the sensor IC chips (112) and the wiring pattern to each other (Fig. 12), wherein each of the wires is connected to the wiring pattern by extending from a corresponding one of the sensor IC chips (112) toward the first side edge of the substrate (118) (Figs. 11 and 12).

Regarding claim 6, the plurality of sensor IC chips (112) are arranged in a straight row (Figs. 11 and 12). According to Fig. 12 of Saito, the wiring pattern includes a conductive path which extends across the row of the sensor IC chips (112) and a conductive path which does not extend across the row of sensor IC chips (112) (the conductive path corresponding to the left end of each of the chips 112, as viewed in Fig. 12).

Regarding claim 7, each of the sensor IC chips (112) is provided with a plurality of connection pads (inherent in the arrangement shown in Fig. 12), and a plurality of light receiving portions (inherent in chips 112) arranged in a straight row. According to Fig. 12, the positions of the ends of the wires connecting the sensor IC chips (112) are closer to the first side edge of the substrate (118) (the upper side edge of the lower part

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of substrate 118 shown in Fig. 12). Thus, the inherent connection pads associated with each of the chips (112) for the wires to connect are arranged at positions offset toward the first side edge (the upper side edge of the lower part of substrate 118).

Regarding claim 8, Saito further discloses a connector (including terminals 124, printed circuit board 126 and connector 115 in Fig. 12) for external connection attached to the first side edge of the substrate (118) (the upper side edge of the lower part of substrate 118 as viewed in Fig. 12, also see Fig. 11). The connector (124, 126 and 115) is electrically connected to the wiring pattern (col. 1, lines 30-60).

Claim 9 is rejected for the reason given for claim 1, for claiming the limitations included in claim 1. The "circuit board unit" of claim 9 is met by the unit of Saito shown in Fig. 11.

Claim 10 is rejected for the reason given for claim 7, for claiming the limitation of claim 7.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito (U.S. Patent No. 6,512,603).

Saito's exemplary embodiment of Figs. 11 and 12 is discussed above for claim 1.

Regarding claim 2, Saito further discloses a light source (117) in the exemplary embodiment shown in Fig. 7 (col. 1, lines 18-50). The case (109) is provided with partition wall for separating the light source (117) and the sensor IC chips (112) (see approximately the middle part of Fig. 11). The partition wall is spaced from the substrate (118).

Saito's embodiment of Figs. 11 and 12 differs from the claimed invention in that the embodiment's light source does not include a light guide. However, in another exemplary embodiment of Saito shown in Figs. 14 and 15 (col. 1, line 61 – col. 2, line 10), the light source (217) includes an LED package and a light guide (light guiding plate 205) for guiding light from the LED package to the image reading region. One of ordinary skill in the art would have realized the benefit of reduced power consumption by employing the light guide (205) to increasing the brightness of light from the LED package. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the light source (117) of the embodiment of Figs. 11 and 12 of Saito with the light source of the embodiment of Figs. 14 and 15, which include the light guide (205), in order to reduce power consumption and yet achieve substantially the same brightness level of light to illuminate the image reading region.

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Regarding claim 4, the partition wall of Saito (Fig. 11) discussed above for claim 2 includes a flat surface (see about the middle of Fig. 11) extending parallel to the principal surface of the substrate (118) (the upper surface of 118 as viewed in Fig. 11), and the wires enter between the flat surface and the principal surface of the substrate (118) at least partially (Figs. 11 and 12, col. 1, lines 18-60).

6. Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito (U.S. Patent No. 6,512,603) as discussed in section 5 above for claim 2, further in view of Furusawa et al. (U.S. Patent No. 6,357,903).

Regarding claim 3, the obvious apparatus of Saito is discussed in section 5 above for claim 2.

Saito does not disclose that the light guide (205) is made of transparent resin.

Furusawa et al. discloses a line type illuminator for illuminating a document being read in an image reading apparatus (Fig. 1), the illuminator comprising a light guide (4) made of transparent resin, which provides high light transparency (col. 5, lines 48-51). Furusawa et al. further discloses a case (5) of the light guide (4), the case (5), formed with a white resin, which has high reflectivity of light, reflecting with its interior surface light from the light guide (4) back to the light guide to increase efficiency of the illuminator (col. 5, line 66 – col. 6, line 17).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the light guide of the obvious apparatus of Saito with

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the light guide (4) of to increase the efficiency of the light guide as taught by Furusawa et al.

Regarding claim 5, the light guide (4) of Furusawa et al. discussed above for claim 3 meets the claimed light guide, and the reflector (case 5) of Furusawa et al. discussed above in the discussion of claim 3 meets the claimed reflector held in contact with the light guide to prevent light from leaking from the light guide (Furusawa et al., Fig. 1, col. 5, lines 48-55 and col. 5, line 66 – col. 6, line 17). It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the light guide structure of the obvious apparatus of Saito with the light guide structure of Furusawa et al. comprising the light guide (4) and the reflector (reflective case 5) in order to increase the efficiency of the light guide as taught by Furusawa et al. as discussed above for claim 3.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sawada (U.S. Patent No. 7,167,284), "Image sensor head provided with separate CCD sensor chip and driver chip", Figs. 2 and 5, wire 15 and wiring pattern (16a-16c)

Fujimoto et al. (U.S. Patent No. 6,864,999), "Integrated image-reading/writing head and image processing apparatus incorporating the same", Figs. 17-20



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Onishi et al. (U.S. Patent No. 6,947,184), "Integral image reading/writing head, image processor provided with this, image reading head and printed head", Figs. 1-4, 6, and 9-14

Tabata (U.S. Patent No. 6,002,494), "Image reading apparatus having light source electrically and directly connected to image sensor board", Fig. 3A, light guide 8 made of transparent resin, col. 1, lines 23-25

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cheukfan Lee whose telephone number is (571) 272-7407. The examiner can normally be reached on 9:30 a.m. to 6:00 p.m., Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward L. Coles can be reached on (571) 272-7402. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Cheukfan Lee  
September 21, 2007